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10/552,435	08/21/2006	Pasi Pigg	0696-0223PUS1	8962
2292 7590 04/08/2008 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				
EXAMINER CALANDRA, ANTHONY J				
ART UNIT		PAPER NUMBER		
1791				
NOTIFICATION DATE		DELIVERY MODE		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

### Office Action Summary

**Application No.**

10/552,435

**Applicant(s)**

PIGG ET AL.

**Examiner**

ANTHONY J. CALANDRA

**Art Unit**

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) 1-7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)
- Paper No(s)/Mail Date 10/6/2005
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

Art Unit: 1791

***Detailed Office Action***

1. The communication dated 10/6/2005 has been entered and fully considered.
2. Claims 1-7 are currently pending.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/32589 PIKKA et al., hereinafter PIKKA et al., in view of applicant's admitted prior art, hereinafter AAPA.

As for claim 1, PIKKA et al. discloses, a method for washing pulping and filtrate in a pulp mill (*a method for washing an alkaline liquid in the washing department of a sulphate cellulose mill* [see e.g. abstract and Figure 2]). PIKKA et al. discloses feeding pulp into a first washer (8), wash water is then added to the first washer (*conducting a first pulp flow (1) to a first washer (101), where a washing liquid (12) is combined with the first pulp flow (1)* [see e.g.

Figure 2]). Pulp from the first washer is sent through the oxygen delignification plant and then to the second washer (10), wherein wash water washes said pulp (*conducting a second pulp flow (2) from the first washer (101) to a second washer (102), where a washing liquid (3) is combined with the second pulp flow (2)* [see e.g. Figure 2]). The wash filtrate from the second washer (10) is then recycled back into the process (*proceeding the washed pulp flow (5) from the second washer (102) in the process and recycling the filtrate (4) displaced by the washing agent (3) to the process* [see e.g. Figure 2]).

The wash filtrate from the second washer is split into two flows, one which is not treated and sent directly to the first washer (8) and the second part (LI) which will be treated (*dividing the filtrate (4) displaced by the washing agent (3) from the washer (102) into a first part flow (6) and a second part flow (7)* [see e.g. Figure 2]).

PIKKA discloses separator (114) for dividing the wash liquor into clean and dirty fractions (see e.g. Figure 2 and pg.7 lines 24 to 32, pg. 8 lines 1-14). The dirty liquor (CD) containing the most amount of solids and COD is removed from the process after being separated in unit (114) (*where the sludge(10) containing extractives and metals is removed from the part flow (9) and the entire process* [see e.g. Figure 2 and pg.7 lines 24 to 32, pg. 8 lines 1-14, examiner has interpreted COD to comprise extractives and the solids to comprise metals]). The clean treated liquor is (CC) is returned and recombined with the untreated liquor for washing the pulp of the first washer (8) (*combining the part flow (11) treated in the process unit (103) with the first part flow (6) and recycling it to the process for use as the washing liquid (12) of the first washer (101)* [see e.g. Figure 2 and pg.7 lines 24 to 32, pg. 8 lines 1-14]).

PIKKA et al. discloses that the separator can be any suitable for the purpose of separating the high solids/COD dirty liquor from the clean liquor. PIKKA et al. does not disclose using acid treatment to precipitate the solids before performing a separation. AAPA teaches that it is previously known in the art *'that extractives and metals can be removed by flocculation or precipitation. These known methods have more efficient operation in neutral or acidic conditions'* [see e.g. specification pg. 1 paragraph 3].

At the time of the invention it would have been obvious to a person of ordinary skill in the art to perform the solids separation of PIKKA et al. using the acid precipitation of AAPA. It is *prima facie* obvious to make a simple substitution of one separation method, such as the membrane or evaporation taught by PIKKA et al., for another known method such as technique such as acid precipitation of solids in alkaline liquor taught by AAPA. The results of the substitution would have been predictable in that acid treatment of alkaline pulping liquors is known to precipitate out solids which can be separated by flocculation. Examiner notes the Supreme Court KSR decision and the 'simple substitution' rationale laid out in the MPEP 2141 (III) (B).

As for claim 2, PIKKA et al. discloses that the filtrate is split from the second washer [see e.g. figure 2], however does not disclose what the split of the washing water is. Examiner has interpreted the split as 50/50 or 1:1 as Figure 2 shows the filtrate tank which splits the liquor to be divided evenly or 50/50. Further, it would have been *prima facie* obvious to optimize the amount of liquor treated [see e.g. MPEP 2144.05 (II) (B)]. The amount of filtrate treated is a result effective variable, treating more filtrate results in greater removal of non-process elements, but requires larger treatment equipment, and greater chemical use.

As for claim 3 and 4, AAPA discloses that neutral (ph -7) is efficient for removing solids[see e.g. specification pg. 1 paragraph 3], a pH of 7 falls within the instant claimed range.

6. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/32589 PIKKA et al., hereinafter PIKKA et al., in view of applicant's admitted prior art, hereinafter AAPA, as applied to claim 1-4 above, and further in view of WO 88/04075 BOKSTROM et al.

As for claim 5, AAPA discloses that the conditions should be neutral or acidic [see e.g. specification pg. 1 paragraph 3]. Since the liquor of PIKKA et al. is alkaline this requires the addition of acid to lower the pH. BOKSTROM et al. discloses that CO<sub>2</sub> and mineral acids can be used to lower the pH of alkaline liquor [pg 2 lines 20-35 and claims 3 and 9]. At the time of the invention it would have been obvious to lower the pH of PIKKA et al. using mineral acids or carbon dioxide as taught by BOKSTROM et al. A person of ordinary skill in the art would be motivated to use carbon dioxide as the acidifying agent as carbon dioxide contains no environmentally hazardous agents [BOKSTROM et al. pg 2. lines 20-35]. Further, it is *prima facie* obvious to use a known acid such as mineral acids or carbon dioxide for changing the pH of the liquor. A person of ordinary skill in the art could readily expect that by adding a mineral acid or carbon dioxide to liquor that the pH would be lowered.

As for claim 6, PIKKA et al. discloses that the wash liquor is split from the post oxygen stage washer, which is the last brownstock washer, and then is sent to the first washer in the fiberline [Figure 2].

As for claim 7, AAPA discloses the methods of flocculation and precipitation (which the examiner has interpreted as a coagulation process) [see e.g. specification pg. 1 paragraph 3].

7. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over 5,509,999 LINDBERG et al., hereinafter LINDBERG et al. in view of applicant's admitted prior art, hereinafter AAPA.

As for claim 1, LINDBERG et al. discloses removing metals from an acidic bleach plant liquor in which the filtrate flow is split from a second washer and part of the flow goes to a treatment (32) [abstract, column 4 lines 26-35, Figure 1]. The pH of the acidic filtrate is made alkaline by the addition of caustic which with the addition of chelating agents precipitates out metals. The desired pH range is effected by the type of chelants used [column 4 lines 35-50]. The treated flow is then combined with the untreated flow (35) and used for washing on the first washer (12) [figure 1].

While LINDBERG et al. deals with acidic liquor in the bleach plant, it would have been obvious to a person of to apply the flow splitting and metal removing treatment of LINDBERG et al. to metal removal from alkaline liquor as disclosed by AAPA [see e.g. specification pg. 1 paragraph 3]. LINDBERG et al. discloses raising the pH of acidic liquor to a pH that metals would precipitate/chelate from, conversely it would be obvious to a person of ordinary skill in the art to lower the pH of alkaline liquor to a pH which promotes precipitation/chelation. A person would be motivated to lower the pH of alkaline liquor because metal precipitation through chelation is dependent on pH as taught by LINDBERG [column 4 lines 35-50]. It is the examiners position, without evidence to the contrary, that how you get to the desired metal removing pH (starting liquor having highly acidic or highly alkaline pH) does not effect the process of removing metals once the liquor is at its final pH.

As for claim 2, LINDBERG et al. discloses the split 1:1, or half [column 4 lines 25-35].

As for claim 3 and 4, LINDBERG et al. discloses the chelation pH of greater than 8 but also says that chelation for metal removal is dependent on the type of chelant be used [column 4 lines 35-45]. At the time of the invention it would have been *prima facie* obvious to optimize the final pH of the filtrate to get the highest amount of metal precipitation. Further, AAPA discloses that neutral pH's do allow good separation of metals.

8. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,509,999 LINDBERG et al., hereinafter LINDBERG et al., in view of applicant's admitted prior art, hereinafter AAPA, as applied to claim 1-4 above, and further in view of WO 88/04075 BOKSTROM et al.

As for claim 5, neither AAPA nor LINDERG et al. disclose using acids to adjust the pH of the filtrate. BOKSTROM et al. discloses that CO<sub>2</sub> and mineral acids can be used to lower the pH [pg 2 lines 20-35 and claims 3 and 9]. At the time of the invention it would have been obvious to lower the pH of AAPA and LINDERG et al. using mineral acids or carbon dioxide as taught by BOKSTROM et al. A person of ordinary skill in the art would be motivated to use Carbon dioxide as the acidifying agent as carbon dioxide contains no environmentally hazardous agents [BOKSTROM et al. pg 2, lines 20-35]. Further, it is *prima facie* obvious to use a known acid such as mineral acids or carbon dioxide for changing the pH of the liquor. A person of ordinary skill in the art could readily expect that by adding a mineral acid or carbon dioxide to liquor that the pH would be lowered.

As for claim 6, LINDBERG et al. discloses the washer (14) which is the last washer before the first bleach plant stage, the peroxide bleaching stage (15). The wash filtrate is



separated and then part is treated (32) and then recombined with the untreated wash filtrate (35) before being used as wash water for washer (12) [see e.g. Figure 1].

As for claim 7, LINDBERG discloses chelation and filtration which are precipitation techniques [see e.g. Figure 1]

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY J. CALANDRA whose telephone number is (571) 270-5124. The examiner can normally be reached on Monday through Friday, 7:30 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steven P. Griffin/  
Supervisory Patent Examiner, Art Unit  
1791

AJC